

WHAT IS CLAIMED IS:

1. A fluorine-containing elastomer having a copolymer composition, which comprises 50-85% by mole of (a) vinylidene fluoride, 0-25% by mole of (b) tetrafluoroethylene, 7-20% by mole of (c) perfluoro(methyl vinyl ether), 3-15% by mole of (d) $\text{CF}_2=\text{CFO}[\text{CF}_2\text{CF}(\text{CF}_3)\text{O}]_n\text{CF}_3$, where n is an integer of 2-6, and 0.1-2% by mole of (e) RfX , where Rf is an unsaturated fluorocarbon group having 2-8 carbon atoms, which may contain at least one ether group, and X is a bromine or iodine atom.
2. A fluorine-containing elastomer according to Claim 1, wherein the elastomer has a solution viscosity η sp/c (1 wt.% methyl ethyl ketone solution at 35°C) of 0.1-2 dl/g.
3. A fluorine-containing elastomer according to Claim 1, wherein the elastomer has a solution viscosity η sp/c (1 wt.% hexafluorobenzene solution at 35°C) of 0.1-7 dl/g.
4. A fluorine-containing elastomer according to Claim 1, wherein the elastomer is prepared by copolymerization in the presence of a bromo and/or iodo compound represented by the following general formula:
$$\text{R}(\text{Br})_n(\text{I})_m$$
where R is a saturated fluorohydrocarbon group or a saturated chloro-fluorohydrocarbon group, each having 2-6 carbon atoms, n and m each are 0, 1 or 2, and $m+n$ is 2.
5. A fluorine-containing elastomer according to Claim 4, wherein the bromo and/or iodo compound is $\text{ICF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{I}$.
6. A fluorine-containing elastomer according to Claim 1 or 4, wherein sum total of the component (c) and the component (d) is at least 10% by mole.
7. A fluorine-containing elastomer according to Claim 1 or 4, wherein

the component (e) is $\text{CF}_2=\text{CFOCF}_2\text{CF}_2\text{Br}$, $\text{CF}_2=\text{CFBr}$, $\text{CF}_2=\text{CHBr}$, $\text{CF}_2=\text{CFI}$ or $\text{CF}_2=\text{CHI}$.

8. A fluorine-containing elastomer according to Claim 1 or 4, wherein the elastomer has a glass transition temperature T_g of -30° to -45°C .

9. A fluorine-containing elastomer according to Claim 1 or 4, wherein the elastomer can give a curing product having low-temperature characteristics according to ASTM D1329 after organic peroxide curing:

$$-43^\circ\text{C} \leq \text{TR}_{10} < -30^\circ\text{C} < \text{TR}_{70} \leq -20^\circ\text{C}$$

10. A fluorine-containing elastomer composition, which comprises 100 parts by weight of a fluorine-containing elastomer according to Claim 1, 0.1-10 parts by weight of an organic peroxide, 0.1-10 parts by weight of a polyfunctional unsaturated compound and not less than 2 parts by weight of an acid acceptor.

11. A fluorine-containing elastomer composition according to Claim 10, wherein not more than 40 parts by weight of fine bituminous powder is further contained.

12. A fluorine-containing elastomer composition according to Claim 10, wherein not more than 40 parts by weight of a flat filler is further contained.

13. A fluororubber-based sealing material obtained by curing molding of a fluorine-containing elastomer composition according to Claim 10, 11 or 12.

14. A fluororubber-based sealing material according to Claim 13, for use as a sealing material for automobile fuel.

15. A fluororubber-based sealing material according to Claim 13, which has a TR_{10} value of not more than -30°C according to ASTM D1329 and a methanol swelling rate of not more than +50% at 25°C for 168 hours

according to JIS K6258.

16. A fluororubber-based sealing material according to Claim 14, which has a TR_{10} value of not more than -30°C according to ASTM D1329, and a methanol swelling rate of not more than +50% at 25°C for 168 hours according to JIS K6258.